News Release

Defense Advanced Research Projects Agency

3701 North Fairfax Drive
Arlington, VA 22203-1714

FOR IMMEDIATE RELEASE November 01, 2010

DARPA Announces the Digital Manufacturing Analysis, Correlation and Estimation (DMACE) Challenge

$50,000 prize offered for the most accurate predictive model

Advances in digital manufacturing (DM) may address cost and time constraints associated with manufacturing the complex components required to support the Department of Defense mission. With the ongoing development of DM, a better understanding of the capabilities and limitations of DM is needed. The Defense Advanced Research Projects Agency (DARPA) Digital Manufacturing Analysis, Correlation and Estimation (DMACE) Challenge is a competition designed specifically to use crowd sourcing to advance knowledge of the potential capabilities and limitations of DM.

Within the Challenge, competitors will develop models that predict the output properties of products created by a DM machine based on corresponding machine inputs. The Challenge could be solved by applying any of a wide variety of engineering, mathematic or other approaches to predictive modeling.

"Widespread acceptance of DM components requires first that we determine whether predictive correlations exist between DM settings and resultant product properties," said Gill Pratt, DARPA program manager. "If a predictive correlation model is found, there is potential to change defense manufacturing significantly. If a manufacturer can predict the reliability of a component part with a high degree of certainty, DM could be used for all sorts of system components."

The DMACE Challenge requires participants to develop the most accurate DM output predictive models given a set of input parameters for two different computer aided designs (CAD): one for a sphere (digitally manufactured with titanium) and another for a cube (digitally manufactured with polymer). Data describing the input settings for a particular digital manufacturing process and the resultant output of structural tests will be distributed by DARPA online. Input setting data may include, but is not limited to device control parameters, material composition, and CAD files. Output test data may include, but is not limited to structural load test results such as stiffness, strength, and displacement data. These data sets will be provided on the DMACE website to registered individuals and teams.

Data to enable correlation model development by competitors will be released incrementally starting on or about October 29, 2010 and will continue through December 1, 2010. Competitor models will be evaluated through some final design parameter changes that will be posted on the www.DMACE.net website towards the end of the competition. After the final configurations are posted to the challenge website, competitors will have a short amount of time to use their models to provide predictions of test results for the two final test articles. The competitors' predictions and models will comprise their Challenge entry. The competition will award a $50,000 prize and singular recognition to the person or

team that most closely predicts a specific property of both of the final test products. Submission entry times will be used as a tie-breaker for matching entries.

DMACE Challenge information and registration will be available on the DMACE Challenge website at www.DMACE.net. Additional information for the DMACE Challenge may be found on Facebook and Twitter.

# # #

Media with inquiries, contact DARPA Public Affairs, DARPAPublicAffairsOffice@darpa.mil